

Invasion Ecology: Intended Learning Outcomes

Skills: Students will be able to

- ◆ Conduct scientific research, starting with well-defined protocols and progressing to open-ended research projects
- ◆ Work collaboratively to design research projects, interpret results, and critically analyze ideas and conclusions
- ◆ Define a research question, then plan and carry out a study to address this question using surveys or other types of studies
- ◆ Analyze data and draw conclusions about invasive species
- ◆ Write a concise and accurate summary of methods, results, and conclusions
- ◆ Use commentary from fellow students to revise or justify research reports and presentations
- ◆ Critically analyze summaries of other students' research to determine whether each study was based on good research design
- ◆ Provide constructive criticism of fellow students' data analysis, interpretations, and conclusions

Concepts: Students will understand that

- ◆ Ecology is the study of living things and their interactions with each other and the physical environment
- ◆ Population ecology is the study of how populations of organisms change in size and location
- ◆ Community ecology is the study of how organisms interact with each other and how groups of organisms change over time
- ◆ Ecosystem ecology is the study of how organisms interact with the nonliving environment
- ◆ Invasive species are an important threat to biodiversity in North America
- ◆ Biological control is one of several alternatives to controlling invasive species
- ◆ Monitoring, laboratory, and field studies all contribute to our understanding of ecological systems
- ◆ Scientists work both individually and collaboratively, reviewing each other's work to provide feedback on experimental design and interpretation of results. These "peer reviews" are used to make decisions about what research gets funded and what results get published in scientific journals
- ◆ Scientific understandings are tentative, subject to change with new discoveries. Peer review among scientists helps sort genuine discoveries from incomplete or faulty work